

**REMARKS**

The present application relates to hybrid maize plant and seed X1139Y. Claims 5-8, 20, and 42-63 have been canceled. Claims 64-91 has been added. No new matter has been added by the present amendment. Applicant respectfully requests consideration of the following remarks.

**Detailed Action****A. Status of the Application**

Applicant acknowledges the objection to the specification for the presence of blank lines as withdrawn, in light of Applicant's assurances that seed of Pioneer inbred lines GE565937 and GE502199 will be deposited, and the ATCC Accession Number inserted into the specification at time of allowance. Applicant further acknowledges the objection of claims 12, 16, 25, and 29 as withdrawn in light of the cancelation. The rejection of claims 1-7 and 9-41 under 35 U.S.C. § 112, second paragraph, are also acknowledged as withdrawn. Applicant acknowledges the rejection of claim 33 as withdrawn in light of its cancelation.

**B. Claim Objections**

Applicant acknowledges the objection of claims 20 and 50 under 37 C.F.R. § 1.75(b), as being duplicate claims. Applicant has canceled claims 20 and 50, thereby rendering this objection moot.

**C. Newly Submitted Claims**

Applicant acknowledges the addition of new claims 64 through 91 as specifically stated by the claims faxed by Examiner David Fox on November 15, 2002 and the new sample claim submitted by Supervisory Patent Examiner Amy Nelson via e-mail on August 7, 2003 and revised via telephone on August 25, 2003. The new claims do not add new matter as there is support for the claims in the originally filed specification. Support for the specific items noted in the claims faxed by Examiner Fox can be found within the specification for *Bacillus thuringiensis* on page 47; for imidazolinone, sulfonylurea, glyphosate, glufosinate, L-phosphinothricin, triazine, and benzonitrile on pages 49-50; for phytase on page 50; and for stearyl-ACP desaturase, fructosyltransferase, levansucrase, alpha-amylase, invertase and starch branching enzyme on pages 50-51.

**Rejections Under 35 U.S.C. § 112, Second Paragraph**

Claim 8 remains rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention, for the reasons of record stated in the Office Action mailed December 26, 2002.

Although not acceding to the Examiner's rejection, in order to expedite prosecution Applicant has canceled claim 8, thereby rendering this rejection moot.

Claims 43-49, 55, 57, 61, and 62 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 43 and 47 stand rejected for the recitation "value added trait gene" as rendering the claims indefinite. Further, the Examiner states there is improper antecedent basis for "The maize plant of claim 42 (or 46)" in line 1.

Applicant has now canceled claims 43 and 47, thus alleviating this rejection.

The Examiner rejects claims 44 and 48 for the recitations "derivative thereof or a synthetic polypeptide modeled thereto" rendering the claims indefinite.

Applicant has canceled claims 44 and 48, thereby alleviating this rejection.

Claim 44 stands rejected as indefinite because the last line of the claim is not consistent with the preamble.

Applicant has canceled claim 44, alleviating this rejection.

The Examiner rejects claim 55 as indefinite for the recitation "an inbred parent plant" in line 7.

Applicant has now canceled claim 55, thus alleviating this rejection.

Claim 57 stands rejected for the recitation "genetic identity" as rendering the claim indefinite.

Applicant has canceled claim 57, thereby alleviating this rejection.

The Examiner rejects claim 61 as indefinite for the recitation "produced by claim 60".

Applicant has now canceled claim 61, alleviating this rejection.

Claim 62 stands rejected as the Examiner states it does not recite any positive method steps.

Applicant has canceled claim 62, thus alleviating this rejection.

In light of the above amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

**Rejections Under 35 U.S.C. § 112, First Paragraph**

Claims 42-44, 46-49, 53, and 56-63 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record stated in the Office Action mailed December 26, 2002.

Although not acceding to the Examiner's rejection, to expedite prosecution Applicant has canceled claims 5-8, 20, and 42-63, thereby rendering this rejection moot. Applicant has added new claims 64-91 as specifically stated by the claims faxed by Examiner David Fox on November 15, 2002 and the new sample claim submitted by Supervisory Patent Examiner Amy Nelson via e-mail on August 7, 2003 and revised via telephone on August 25, 2003. The new claims do not add new matter as there is support for the claims in the originally filed specification as described *supra*.

Claims 46-49 stand rejected under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains or with which it is most nearly connected, to make and/or use the invention.

Applicant respectfully traverses this rejection. Applicant submits that the actual ATCC deposit will be delayed until receipt of notice that the application is otherwise in condition for allowance. As provided in 37 C.F.R. §§ 1.801-1.809, Applicant wishes to reiterate they will refrain from deposit of hybrid maize plant X1139Y and the inbred parents GE565937 and GE502199 until allowable subject matter is indicated. Once such notice is received, an ATCC deposit will be made, and the specification will be amended to contain the accession number of the deposit, the date of the deposit, description of the deposited biological materials sufficient to specifically identify and to permit examination and the name and address of the depository. The claims will also be amended to recite the proper ATCC deposit numbers. The Applicant provides assurance that:

- a) during the pendency of this application access to the invention will be afforded to the Commissioner upon request;
- b) all restrictions upon availability to the public will be irrevocably removed upon granting of the patent;
- c) the deposit will be maintained in a public depository for a period of thirty years, or five years after the last request for the enforceable life of the patent, whichever is longer;
- d) a test of the viability of the biological material at the time of deposit will be conducted (see 37 C.F.R. § 1.807); and
- e) the deposit will be replaced if it should ever become inviable.

Therefore, Applicant submits at least 2500 seeds of hybrid maize plant X1139Y and the inbred parents GE565937 and GE502199 will be deposited with the ATCC. Nevertheless, in order to expedite prosecution claims 46-49 have been canceled and new claims 64-91, have been added as disclosed *supra*.

In addition, Applicant asserts that the introgression of mutant genes and transgenes is easily, routinely and extensively practiced by those of ordinary skill in the art. Backcrossing has been known since the 1920's and, because of its predictability, is the method preferred by commercial plant breeders to introduce transgenes into already developed and tested material. An example of how one of ordinary skill in the art can transfer a gene conferring a qualitative trait into a variety through backcrossing is demonstrated by the fact that the commercial market now distributes a multitude of products produced in this manner. Such conversion lines are easily developed without undue experimentation.

Further, the Applicant would like to reiterate that a patent application "need not teach, and preferably omits, what is well known in the art." *Hybritech Inc. v. Monoclonal Antibodies Inc.*, 802 F.2d 1367, 231 U.S.P.Q. 81 (Fed. Cir. 1986); MPEP § 601.

The Applicant also respectfully disagrees with the Examiner as to what is taught by Hunsperger *et al.* Hunsperger *et al.* merely teaches that a gene that results in dwarfism of a petunia plant can be incorporated into other genetic backgrounds of the petunia species (See column 2, line 67 to column 3, lines 1-4). Hunsperger *et al.* merely discusses that the level of the expression of that gene differed in petunia plants of different genetic backgrounds. Hunsperger *et al.* succeeded in incorporating the gene into petunia plants of different genetic backgrounds. In

fact, the USPTO in Hunsperger *et al.* allowed claims to any petunia plant comprising genes for dwarfism. Therefore, Hunsperger *et al.* supports the fact that one can introgress a specific trait into a recurrent parent through backcross conversion. Applicant's specification provides ample disclosure of starting materials such as, maize inbred line X1139Y, a discussion of traditional breeding methods, and examples of transgenes and naturally occurring genes that may be used in such methods. Hallauer *et al.* (1988) on page 472, submitted in the Information Disclosure Statement, states that, "For single gene traits that are relatively easy to classify, the backcross method is effective and relatively easy to manage." The teaching of Hallauer *et al.* relates specifically to corn breeding and corn inbred line development.

The Examiner goes on to state that, "Kraft *et al.* teaches that linkage disequilibrium effects and linkage drag prevent the making of plants comprising a single gene conversion, and that such effects are unpredictably genotypic specific and loci-dependent in nature" (page 323, column 1, lines 7-15). Applicant disagrees that the article states such points. Kraft *et al.* makes no mention of a plant comprising a single gene conversion or the use of backcrossing. Further, Kraft *et al.* relates to linkage disequilibrium and fingerprinting in sugar beet, a crop other than maize. Kraft *et al.* states, on page 326, first column, "The generality of our results for other crop species needs to be investigated."

It is understood by those of skill in the art that backcross conversions are routinely produced and do not represent a substantial change to a variety. The World Seed Organization, on its web site, writes, "The concept of an essentially derived variety was introduced into the 1991 Act of the UPOV Convention in order to avoid plagiarism through mutation, multiple back-crossing and to fill the gap between Plant Breeder's Rights and patents." As determined by the UPOV Convention, "essentially derived varieties may be obtained for example by the selection of a natural or induced mutant, or of a somaclonal variant, the selection of a variant individual from plants of the initial variety, backcrossing, or transformation by genetic engineering.

The Examiner goes on to state that, "Eshed *et al.* teaches that in plants, epistatic genetic interactions from the various genetic components comprising contributions from different genomes may affect quantitative traits in genetically complex and less than additive fashion" (page 1815, column 1, line 1 to page 1816, column 1, line 1). The Applicant would like to point out on page 1816, column 1, lines 1-5 of the Eshed *et al.* article it states, "Recent studies that

detected epistasis of selected QTL in *Drosophila* (Long *et al.* 1995), soybean (Lark *et al.* 1995) and maize (Doebley *et al.* 1995; Cockerham and Zeng 1996) did not show a less-than-additive trend." Emphasis added. The Applicant also adds that transferring a qualitative trait does not require undue experimentation. Please note Hallauer *et al.* (1988) on page 472, submitted in the Information Disclosure Statement, which states, "For single gene traits that are relatively easy to classify, the backcross method is effective and relatively easy to manage." In newly submitted claims 64-91, the genes transferred into X1139Y are now limited to the traits of disease resistance, insect resistance, herbicide resistance, male sterility, waxy starch, and a gene that encodes a product that modifies fatty acid metabolism, that decreases phytate content, or that modifies starch metabolism. Applicant respectfully requests the Examiner to withdraw this rejection. For the reasons aforementioned, it is respectfully submitted that Applicant's claims are sufficiently described and enabled by the specification.

In light of the above amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 42-44, 46-49, 53, and 56-63 under 35 U.S.C. § 112, first paragraph.

### Summary

Applicant acknowledges that claims 1-7, 51, 52, and 54 are allowed.

Applicant has amended the claims as suggested by Examiner David Fox and Supervisory Patent Examiner Amy Nelson as allowable. Applicant submits the claims place the application in condition for allowance and comply with all requirements of form set forth in previous office actions.

### Conclusion

In conclusion, Applicant submits in light of the above amendments and remarks, the claims as amended are in a condition for allowance, and reconsideration is respectfully requested. If it is felt that it would aid in prosecution, the Examiner is invited to contact the undersigned at the number indicated to discuss any outstanding issues.

No fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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